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10/826,410

04/19/2004

Takatsugu Doi

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EXAMINER

MARTIN, LAURA E

ART UNIT

PAPER NUMBER

2853

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

5H

Office Action Summary

Application No.

10/826,410

Applicant(s)

DOI, TAKATSUGU

Examiner

Laura E. Martin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 August 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 9-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 9-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

Claim 1 is objected to because of the following informalities: "Providing" should be corrected to "providing". Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 6-7, 9, 10, 12, 14, 15, and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koyano et al. (US 20030064206) in view of Yamashita et al. (US 20030043245).

Koyano et al. discloses the following claim limitations:

As per claim 1: a first liquid and a second liquid, wherein the first liquid is a color ink [0029] (the treatment liquid can be pale colored) and the second liquid is black ink [0164] (the second liquid – ink – can be any color including black), providing the first liquid on a recording medium and providing the second liquid so as to be in contact with a region where the first liquid has been provided on the recording medium to thereby form an image [0019], wherein a contact angle of the second liquid with respect to the region where the first liquid is provided on plain paper is 60° or more [0022].

As per claims 2 and 19: the first liquid contains at least one additive selected from the group consisting of a silicone type compound and a fluorine type compound [0145].

As per claim 3: wherein the silicone type compound is a silicone type surfactant and the fluorine type compound is a fluorine type surfactant [0145].

As per claims 6 and 18: the first liquid contains at least a water soluble solvent [0028], a surfactant [0058], and water, and the second liquid contains at least a colorant [0028], a water-soluble solvent [0028] and [0030] and water [0175].

As per claim 7: the first liquid contains a colorant [0029].

As per claim 10: the colorant contained in the second liquid is a pigment and the pigment is selected from the group consisting of a pigment dispersible in the second liquid by combining with a polymer dispersant, a self-dispersible pigment, and a pigment coated with a resin [0174].

As per claim 12: the surface tension of the first liquid is 15 mN/m or more and 45 mN/m or less [0022].

As per claim 15: the first liquid is provided on the recording medium by utilizing any one system selected from the group consisting of a thermal ink jet system and a piezo ink jet system, and the second liquid is provided so as to be in contact with the region where the first liquid has been provided on the recording medium to thereby form an image [0077] and [0228].

As per claim 17: at least one of the first and second liquids contains a colorant [0029], an image is formed at least by jetting the first liquid from the recording head onto

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the recording medium and jetting the second liquid from the recording head so as to be incontact with a region where the first liquid has been provided on the recording medium [0018-0019] and [0022], a contact angle of the second liquid with respect to the region where the first liquid is provided on plain paper is 60° or more [0022].

Koyano et al. does not disclose the following claim limitations:

As per claims 1 and 17: a contact angle of the second liquid with respect to the plain paper is less than 85°

As per claim 9: the colorant contained in the first liquid is a dye.

As per claim 14: the viscosity of each of the first and second liquids is 1.2 mPa*s or more and 6.0 mPa*s or less.

Yamashita et al. discloses the following claim limitations:

As per claims 1 and 17: a contact angle of the second liquid with respect to the plain paper is less than 85° [0086].

As per claim 9: the colorant contained in the first liquid is a dye [0077-0078].

As per claim 14: the viscosity of each of the first and second liquids is 1.2 mPa*s or more and 6.0 mPa*s or less [0103].

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the ink taught by Koyano et al. with the disclosure of Yamashita et al. in order to reduce bleeding and provide a higher quality image.

Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koyano et al. (US 20030064206) and Yamashita et al. (US 20030043245) and further in view of Takao (US 20020077383).

Koyano et al. as modified discloses the following claim limitations:

The ink recording method of claim 2.

Koyano et al. as modified does not disclose the following claim limitations:

As per claim 4: the weight average molecular weight of the silicone type compound or fluorine type compound is 3,000 or more.

As per claim 5: an acid value of the silicone type compound or fluorine type compound is 20 mg KOH/g or more and 250 mg KOH or less.

Takao discloses the following claim limitations:

As per claim 4: the weight average molecular weight of the silicone type compound or fluorine type compound is 3,000 or more [0031].

As per claim 5: an acid value of the silicone type compound or fluorine type compound is 20 mg KOH/g or more and 250 mg KOH or less [0030].

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method taught by Koyano et al. as modified with the disclosure of Takao in order to create a more stable ink product.

Claims 11 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koyano et al. (US 20030064206) and Yamashita et al. (US 20030043245) and further in view of Koga et al. (US 20030234846).

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Koyano et al. as modified discloses the following claim limitations:

The ink recording method of claim 1 and the recording device of claim 17.

Koyano et al. as modified does not disclose the following claim limitations:

As per claims 11 and 20: a number of coarse particles having a particle diameter of 0.5 micrometers or more which are contained in a mixed solution prepared by mixing the first and second liquids is 100,000/microliter or less.

Koga et al. discloses the following claim limitations:

As per claims 11 and 20: a number of coarse particles having a particle diameter of 0.5 micrometers or more which are contained in a mixed solution prepared by mixing the first and second liquids is 100,000/microliter or less [0104].

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method taught by Koyano et al. as modified with the disclosure of Koga et al. to reduce clogging.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Koyano et al. (US 20030064206) and Yamashita et al. (US 20030043245) and further in view of Oshima (US 20020058729).

Koyano et al. as modified discloses the following claim limitations:

The ink recording method of claim 1.

Koyano et al. as modified does not disclose the following claim limitations:

As per claim 13: the surface tension of the second liquid is 15 mN/m or more and 60 mN/m or less.

Oshima discloses the following claim limitations:

As per claim 13: the surface tension of the second liquid is 15 mN/m or more and 60 mN/m or less [0006].

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the ink taught by Koyano et al. with the disclosure of Oshimia in order to increase permeability.

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Koyano et al. (US 20030064206) and Yamashita et al. (US 20030043245) and further in view of Maze et al. (US 20010008411).

Koyano et al. as modified discloses the following claim limitations:

The ink recording method of claim 6.

Koyano et al. as modified does not disclose the following claim limitations:

As per claim 16: the second liquid is provided on the recording medium in a liquid droplet state, and weight of one droplet of the second liquid is 25 ng or less.

Maze et al. discloses the following claim limitations:

As per claim 16: the second liquid is provided on the recording medium in a liquid droplet state, and weight of one droplet of the second liquid is 25 ng or less [0032].

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the ink taught by Koyano et al. as modified with the disclosure of Maze et al. in order to print a high quality image.

Response to Arguments

Applicant's arguments with respect to claims 1-7 and 9-20 have been considered but are moot in view of the new ground(s) of rejection.

The examiner would like to point out that, in Koyano et al., the fixing solution can be a pale color, and the second liquid can be that of a black color, thus Koyano et al. meets that aspect of the claim limitations.

The applicant argues that Yamashita does not teach a first liquid is a color ink and the second liquid is a black ink; however, in [0054], Yamashita et al. discloses colored and black inks. It would have been obvious to one of ordinary skill in the art at the time of the invention that the second liquid that is in contact with the paper can be a black ink. Also, the examiner would like to note that Yamashita et al. is being used to teach only "a contact angle of the second liquid with respect to plain paper is less than 85°"; this section has no mention of colored liquid, which is taught by Koyano et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura E. Martin whose telephone number is (571) 272-2160. The examiner can normally be reached on Monday - Friday, 7:00 - 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Laura E. Martin



MANISH S. SHAH
PRIMARY EXAMINER